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ABSTRACT

To examine 2 shortcomings of previous cross-sectional farm recruitment research, the study population of the National Longitudinal Survey of the High School Class of 1972, consisting of 14,112 individuals who completed the base year questionnaire and 3 subsequent follow-up questionnaires, was divided into analytic sub-groups based on senior year occupational ambitions, occupational attainment for 4 years after high school, and expected occupation at age 30. Two questions were addressed: (1) the relationship between farming plans and attainment of a farm job; and (2) background factors and social conditions associated with the temporal sequencing of farm plans, the attainment of a farm job, or the decision to abandon a farm career and pursue other options. Results showed that farming plans expressed by high school seniors on social surveys were poor predictors of attaining a farm job; most individuals working in farm jobs four years after high school did not report farming plans in high school; and formation of farming plans and/or attainment of a farm job were related to previous exposure to agriculture at home and in school. Data reaffirmed that unless a young person is from a farm background, he/she has little chance of becoming a farmer. (Author/CM)

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STABILITY AND CHANGE IN FARMING PLANS: RESULTS FROM A LONGITUDINAL STUDY OF YOUNG ADULTS*

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STABILITY AND CHANGE IN FARMING PLANS: RESULTS FROM A LONGITUDINAL STUDY OF YOUNG ADULTS*

Abstract

Using panel data from the National Longitudinal Survey of the High School Class of 1972 (NLS), two shortcomings of previous cross-sectional farm recruitment research are examined. First, what is the relationship between farming plans and the attainment of a farm job? Second, what background factors and social conditions are associated with the temporal sequencing of farm plans, the attainment of a farm job, or the decision to abandon a farm career and pursue other career options. To address these questions, the NLS study population is divided into analytic subgroups based on senior year occupational ambitions, occupational attainment four years after high school, and expected occupation at age 30. Results show that farming plans as expressed by high school seniors on social surveys are poor predictors of attaining a farm job; that the majority of individuals working in a farm job four years after high school did not report farming plans in high school; and that the formation of farming plans and/or the attainment of a farm job is related to previous exposure to agriculture at home and in school.

STABILITY AND CHANGE IN FARMING PLANS: RESULTS FROM A LONGITUDINAL STUDY OF YOUNG ADULTS

Over the past twenty-five years rural sociologists have explicated a rather wide set of factors and conditions associated with the desire or expectation to farm. Early studies, which focussed almost exclusively on white male high school students, (Haller, 1957; Burchinal, 1961; Kaldor, 1962; Straus, 1956, 1964) found that unless a young man came from, or married into a farm family, he had little change of becoming a farmer. More recent work by Lyson (1979a; 1979b) and Molnar and Dunkelberger, (1981) has extended this line of research to include women, blacks, and college students. These later studies further confirm that farm roots, or the chance to inherit a farm, are the key factors in the formation of farming plans.

Previous farm recruitment studies, however, have been hampered by either the failure or inability to "follow-up" on the farming plans of the study populations under investigation. Given what is generally known about the disparity between occupational expectations and attainments (Astin, 1967), and particularly the barriers to entry into farming (Coffman, 1979; Beale, 1979), it seems likely that some, perhaps many, farm planners either might abandon their decision to pursue a farm career and seek out other non-farm related occupational alternatives, or at least temporarily postpone movement into farming. Unfortunately, the extent to which farm planners "change their minds" and pursue other career options and the factors and conditions that contribute to, and are associated with these changes remain unknown.

Earlier research into the process of farm recruitment also implicitly assumed that farm plans are formulated early in an individual's life and that entree into farming occurs shortly after formal schooling is completed (Kaldor, 1962; Straus, 1956). Recent investigations by Steeves (1979) Bollman and Steeves (1980), and Hauser and Featherman (1978), along with earlier work by Blau and Duncan (1967), however, show that farm recruitment is not restricted to any one age cohort or to any specific time in a person's work history. Rather, farm plans can be formulated, and entry into farming occur, at any time in a person's life. In fact, Steeves (1979:577-579) notes that, while the rate of entry into farming is highest for indidivuals under age 25, substantial numbers of farm recruits are found throughout the age spectrum. A full understanding of the farm recruitment process requires increased attention to factors associated with temporal differences in both the decision to farm and the beginning of a farm career.

This paper attempts to overcome the shortcomings of previous cross-sectional farm recruitment research by using longitudinal data from a large national sample of American young people. The use of longitudinal data allows us to examine two previously unaddressed research questions. First, what is the nature of the relationship between farming plans and the attainment of a farm job? And,second, what background factors and social conditions are associated with the temporal sequencing of farm plans, the attainment of a farm job, or the decision to abandon farming/farming plans and pursue other (non-farm) career options.

DATA AND ANALYTICAL FRAMEWORK

Data for analysis are from the National Longitudinal Survey of the High School Class of 1972. The NLS data is a rich source of information on the career development processes for American young people. Since the NLS study has been described in detail elsewhere (Thomas, et al., 1979), a lengthy discussion of the sampling frame, questionnaire construction, and data collection procedures can be avoided here. It should be noted, however, that the NLS study consists of base year data collected in the fall of 1972 from a sample of seniors in 1070 public and private high schools within the fifty states and the District of Columbia. Follow-up studies via mail questionnaire and telephone interview were undertaken in the fall of 1973, 1974, and 1976. The sampling frame was a two-stage probability sample with schools as the first stage sampling and students as the second stage units. Schools in low income areas or with a high percentage of non-white enrollment were sampled at twice the normal rate. The base year questionnaire was administered to 16,683 students in 1972. The three subsequent follow-ups were completed by 14,112 (84.6%) of these individuals. Data for this paper came from the 14,112 respondents who completed the base year questionnaire and each of the three follow-up questionnaires.

To directly address the first research question and to form a basis for addressing the second question, the NLS study population is divided into seven analytic subgroups (Table 1) based on: 1) senior year occupational ambition; 2) occupational attainment four years after high school; and 3) expected occupation at age 30 (from the 1976 questionnaire).[1] To simplify the analysis and interpretation of the data, each subgroup of

individuals in Table 1 has been labeled with a term that describes and characterizes a particular farm-related career planning strategy.

Briefly, individuals who reported farming plans during their senior year in high school and who were working in a farm job in 1976 are labeled Achievers. Individuals who listed farming plans in 1972, were not working in a farm job in 1976, but expected to become farmers of farm managers by the time they reached age 30 are labeled Delayers. Dropouts are individuals who planned to farm in 1972, but were neither working in a farm job in 1976, nor expected to enter farming by age 30. Converts reported non-farm occupational plans in 1972, but were working in farm jobs in 1976 and expected to continue in these jobs at least until age 30. Transients also reported non-farm occupational plans in 1972 and were also working in farm jobs in 1976. Unlike the converts, however, transients expected to leave farming by age 30. Latecomers did not plan to farm when they were high school seniors and were not working in a farm job in 1976. However, Latecomers expected to become farmers of farm managers by the time they were 30 years old. Finally, the All Other subgroup is comprised of individuals who did not expect to farm in 1972, were not working in farm jobs in 1976, and did not expect to become farmers by age 30. The All Other group provides a basis of comparison reflecting the general character of the NLS study population. Six correlates of farm recruitment, identified from previous studies (see especially Lyson, 1979; Molnar and Dunkelberger, 1981; and Haller and Sewell, 1967), will be introduced to address the second research question. These variables pertain to personal characteristics (race and sex), social origins (residence place and father's occupation), and

educational experiences (high school curriculum, number of semesters of agriculture taken in high school, and educational attainment).[2]

Discriminant analysis (Klecka, 1975) is used to measure the extent to which the various subgroups listed in Table 1 differ on these variables. Two discriminant analysis are reported. The first distinguishes among all seven subgroups listed in Table 1 while the second excludes the All Other category and distinguishes among the six subgroups that at one time or another either planned to farm or were working in a farm job. The first discriminant analysis is designed to compare the general study population to each of the other six subgroups while the second discriminant analysis identifies those social dimensions most closely associated with different paths toward, into, and away from a career in production agriculture.

RESULTS

The empirical analysis begins with some brief observations about the longitudinal consistency of farm plans as expressed by individuals on social surveys and the relationship between farm plans and the attainment of a farm job. Column A of Table 2 shows, for example, that almost two-thirds of the senior who planned to farm in 1972 had abandoned their farming plans by 1976 (i.e., Dropouts). Further, only about 20 percent of the 1972 farm planners were actually working in a farm job in 1976 (i.e., Achievers). The fact that 64.4 percent of the high school farm planners changed their career plans shortly after leaving high school certainly brings into question the usefulness of findings from earlier cross-sectional farm recruitment studies and suggests the existence of some rather dramatic and unsuspected barriers to entry into farming that young people, even at the point of launching a career in farming, seem to be unaware of.

The incongruity between farm plans and the attainment of a farm job is further brought to light in Column B of Table 2. Among young people working in a farm job in 1976, only 35.2 percent (i.e., Achievers) held farming plans four years earlier. The remaining 65 percent reported non-farm occupational ambitions during their senior year in high school. It is interesting to note, however, that over 70 percent of the individuals working in a farm job in 1976 (i.e., Converts and Achievers) planned to remain in farming at least until they reached age 30. This suggests that while the farming plans of high school seniors may not be an especially good indicant of attaining a farm job (Column A), working in a farm job four years after high school (Column B) is a good referent of later farm plans.

The findings in Column C of Table 2 further illustrate the dynamic nature of the farm recruitment process. Among young people who in 1976 expected to enter farming by age 30, almost 60 percent (i.e., Delayers and Latecomers) were not currently working in a farm job and almost 45 percent (i.e., Latecomers) had not previously expressed a desire to farm. Looked at another way, only about one-third of the farm planners in 1976 (i.e., Achievers and Delayers) were also farm planners in 1972. Finally, it is worth noting that although about two-thirds of the farm planners in 1972 were not farm planners in 1976, the absolute number of individuals planning to farm was remarkably similar in 1972 (N=177) and in 1976 (N=184).

Table 3 reports subgroup means and standard deviations for the variables to be used in the discriminant analysis. Looking first at differences across all seven subgroups and using the All Other category

(Column 7) as a point of reference, it is apparent that individuals who at one time or another either planned to farm or were working in a farm job (Column 1-6) were more likely to be white and male, to have lived in a rural/farm community in 1972, to have been enrolled in an agricultural curriculum in high school, to have taken significantly more semesters of agriculture in high school, and to have attained slightly less post-secondary schooling by 1976.

When the All Other category is excluded from the comparative framework, significant differences across the remaining six subgroups (Columns 1-6) appear for five of the seven discriminating variables. Only race and educational attainment in 1976 do not vary across these subgroups. Within groups 1-6, Achievers and Converts were more likely to be male, while proportionately more females were found in the Transient and Latecomer categories. Almost all of the Achievers lived in a rural/farm community in 1972, compared to about two-thirds of the Delayers, Converts, Transients, and Latecomers and less than half of the Dropouts. Furthermore, 80 percent of the Achievers had fathers who were farmers or farm managers.

In terms of high school experiences, Achievers, Delayers, and Dropouts (those who planned to farm in 1972) were more likely to have been enrolled in agricultural curriculums in high school than either the Converts, Transients or Latecomers (those who did not plan to farm in 1972). Not surprisingly, Achievers also took more semesters of agriculture in high school than any other subgroup.

Taken together, the means in Table 3 show that Achievers, by far, manifested those traits and characteristics previous research has shown to be closely associated with recruitment into farming. Converts also

displayed many of the previously identified farm recruitment characteristics. Unlike Achievers, however, Converts tended not to be enrolled in high school agricultural curriculums and conjointly took few agricultural courses in high school. Delayers also manifested many of the same characteristics as Achievers and Converts. However, considerably fewer Delayers had fathers who were farmers. Of the remaining three groups, Latecomers and Transients were more likely to be female and less likely to have had fathers who were farmers than either Achievers, Converts and Delayers. Like Converts, less than 10 percent of the Latecomers and Transients were enrolled in agricultural curriculums. Finally, the Dropouts were the least likely to have come from a farm background and to have had a father who was a farmer.

Discriminant Analyses

Looking first at the discriminant analysis using all seven subgroups, Table 4 shows that six of the seven variables considered in Table 3 manifest significant discriminating ability. Only educational attainment fails to add anything to the understanding of differences among the seven groups. The most important factors separating the subgroups are number of semesters of agriculture, father's occupation, and high school curriculum. Race, sex, and residence place are somewhat less important in distinguishing among groups.

Although three statistically significant discriminant functions were derived, only the first function is reported since it accounts for over 90 percent of the explained variance existing in the variables. The first function loads heaviest on number of semesters of agriculture taken in high school, father's occupation, and high school curriculum

and can be labeled an "agricultural background" dimension. The canonical correlation (.414) and Wilk's lambda (.812) for the first function indicate that the six discriminating variables are moderately successful in distinguishing among the seven groups.

An examination of the group centroids in Tables 4B shows that the first function is most successful in separating the All Other group from the Achiever group. Delayers and Converts fall closer to Achievers along this dimension while Dropouts, Transients, and Latecomers are closer to the All Other group. Translating the standardized discriminant coefficients and group centroid scores into operationally meaningful terms, reveals that Achievers have the strongest agricultural background followed by Delayers and Converts. Not surprisingly, the All Other group serves to anchor this dimension at a point that represents an almost total non-agricultural background. It should be noted that, the Latecomers, while certainly showing some agricultural background traits as measured by function 1, are closest to the All Other group. This suggests that a desire to farm is more closely associated with an agricultural background among high school students (i.e., Achievers, Delayers) and less closely associated with a farm background among individuals who decide to become farmers after high school. Of course, it is not known how many Latecomers will actually become farmers. It may be that only those who come from farm backgrounds or who have had previous exposure to agriculture will actually make it while others with less exposure to farming or access to a family farm (like the Dropouts) will fall away and pursue non-farm related career options.

The second discriminant analysis (Table 5) eliminates the All Other category from consideration and distinguishes only among the six subgroups that at one time or another planned to farm or were working in a farm job. Table 5 shows that six variables combine to form two statistically significant discriminant functions. As was the case in Table 4, educational attainment in 1976 was found to be unimportant in distinguishing among the six groups in Table 5. Father's occupation and the number of semesters of agriculture taken in high school emerge as the most important discriminant variables. The two demographic variables, race and sex, along with residence in 1972 and high school curriculum display somewhat less discriminating ability.

The first function accounts for almost 62 percent of the explained variance and loads most heavily on father's occupation and number of semesters of agriculture. The relatively small lambda (.690) for the first function indicates that considerable discriminating power exists in the variables in Table 5. An examination of subgroup centroids (Table 5B) shows that the first function separates the Achievers from the other five groups, especially the Dropouts, Transients, and Latecomers.

The second discriminant function accounts for only 22 percent of the explained variance and loads most heavily on sex, number of semesters of agriculture, and residence in 1972. The relatively large lambda (.861) and small canonical correlation (.288) indicates that this function is of less statistical importance in distinguishing among the six subgroups than the first function. Looking at the mean discriminant scores for the second function (Table 5B), it is apparent that the second function is most useful in distinguishing the Latecomers from the Dropouts.

SUMMARY AND CONCLUSIONS

The findings from this research have expanded and extended what we know about the process of farm recruitment in the United States. To briefly summarize, it was found that farming plans, as expressed by high school seniors on social surveys, are relatively poor predictors of either future farming plans or actually attaining a farm job four years after high school. Second, the majority of individuals working in farm jobs four years after high school did not report farming plans in high school. Interestingly, however, many of those working in farm jobs in 1976 expected to continue farming at least through their thirtieth birthday. Third, among young people planning to be farmers or farm managers by age 30, the majority has not reported farm plans in high school, and close to half of these young people were not working in a farm job. Fourth, the formation of farming plans and/or the attainment of a farm job is conditioned by an individual's previous exposure to, and familiarity with agriculture either at home or in school. Finally, young people who actually entered farm jobs four years after high school (i.e., Achievers, Converts, Transients) were more likely to have come from a farm background and to have been exposed to agricultural courses and an agricultural curriculum in high school than either young people who had planned to farm but later changed their minds (i.e., Dropouts) or individuals who had planned to farm but had not been able (for whatever reasons) to secure farm work (i.e., Delayers and Latecomers).

At one level, the findings in this paper reaffirm what is already known about the process of farm recruitment: Unless a young man or woman comes from a farm background he or she has little chance of becoming a farmer. Most of the individuals who succeeded in securing a

farm job shortly after high school came from homes where their fathers were full-time farmers. On the other hand, considerably less of those individuals who gave up the quest for a farm career came from homes where their fathers were full-time farmers.

More importantly, however, the findings highlight the dynamic nature of the farm recruitment process in the United States and illustrate the shortcomings of previous cross-sectional farm recruitment research. A decision to farm or even entrance into farming is not irrevocable. Rather the formation of farm plans and the movement into and out of farming are best viewed within a larger framework of perceived occupational opportunities and rewards.

Future research would do well to expand the present inquiry to other age cohorts to see if the factors and conditions that enhance or dampen the desire and/or opportunity to farm vary by an individual's age or previous work history. Along this line, subsequent investigations should begin delineating the nature and type of occupational opportunities that syphon farm planners/farmers away from farming and conversely, the types of occupations that latecoming farmers/farm planners defect from. Finally, the range of variables associated with various farm recruitment strategies should be broadened to include various attitudinal and value measures pertaining to work, agrarianism, life style, and the like.

Table 1. Farm-related career strategies: a description of seven analytic subgroups from the NLS.

Analytic subgroup	Senior year occupational plans (1972)	Occupational attainment in 1976	Expected occupation at age 30 (1976)
Achievers	Farmer/ Farm manager	Farm job	Farmer/ Farm manager[1]
Delayers	Farmer/ Farm manager	Non-farm job	Farmer/ Farm manager
Dropouts	Farmer/ Farm manager	Non-farm job	Non-farm job
Converts	Non-farm job	Farm job	Farmer/ Farm manager
Transients	Non-farm job	Farm job	Non-farm job
Latecomers	Non-farm job	Non-farm job	Farmer/ Farm manager
All other	Non-farm job	Non-farm job	Non-farm job

[1]Only eight percent of the Achievers (N=3) expected to be working in a non-farm job at age 30. Because of the small N and because the likelihood exists that these three individuals might become part-time farmers, a separate analytical category was not identified.

Table 2. The longitudinal consistency of farming plans and the relationship between farming plans and the attainment of a farm job.

	(N)	Planned to be a farmer or farm manager in 1972	Working in a production agriculture job in 1976	Planned to be a farmer or farm manager at age 30 in 1976
		----------percentages----------		
Achievers	(37)	20.9	35.2	20.1
Delayers	(26)	14.7	--	14.1
Dropouts	(114)	64.4	--	--
Converts	(39)	--	37.2	21.2
Transients	(29)	--	27.6	--
Latecomers	(82)	--	--	44.6
Total %		100.0	100.0	100.0
Total N	(327)	(177)	(105)	(184)

Table 3. Subgroup means for discriminant analysis variables.

Variables	(1) Achievers	(2) Delayers	(3) Dropouts	(4) Converts	(5) Transients	(6) Late-comers	(7) All other	(1-6) F	(1-7) F
Sex (1=male)	1.00	0.870	0.860	0.969	0.808	0.712	0.457	4.11*	30.38*
Race (1=white)	0.971	0.956	0.880	0.906	0.885	0.966	0.859	1.22	2.01***
Residence in 1972 (1=farm)	0.971	0.652	0.460	0.688	0.615	0.610	0.214	6.53*	49.07*
Father's occupation (1=farmer)	0.800	0.478	0.240	0.594	0.346	0.356	0.048	9.18*	146.4*
High school curriculum (1=agriculture)	0.257	0.217	0.180	0.062	0.077	0.085	0.008	1.97***	93.31*
Number of agriculture courses in high school	5.23	2.56	2.04	1.50	2.11	1.36	0.19	7.35*	185.6*
Educational attainment in 1976	2.08	1.87	1.97	2.28	2.08	2.22	2.34	0.88	3.17**

*P < .001.

**P < .05.

***P < .10

Table 4. Stepwise discriminant analysis using seven analytic subgroups.

Variable	Step	Wilk's lambda	Multivariate F	Standardized discriminant coefficients
Number of semesters of ag.	1	.893	185.6	.526
Father's occupation	2	.840	140.2	.539
High school curriculum	3	.822	104.3	.307
Sex	4	.814	81.6	.206
Residence in 1972	5	.813	65.6	.061
Race	6	.812	54.8	.075
		Eigenvalue:		.207
		Canonical correlation:		.414
		Chi-square:		1928.3
				P <.001

Group Centroid Scores

Achievers	Delayers	Dropouts	Converts	Transients	Late-comers	All Others
5.065	2.886	1.922	2.276	1.913	1.599	-.072

Table 5. Stepwise discriminant analysis using six analytic subgroups (All Other category is omitted).

Variable	Step	Wilk's lambda	Multivariate F	First func. standardized discriminant coefficients	Second func. standardized discriminant coefficients
Father's occupation	1	.854	9.18	.607	-.226
No. of sem. of ag.	2	.780	7.08	.418	.510
Sex	3	.743	5.58	.175	.564
Race	4	.723	4.54	.193	-.382
Residence in 1972	5	.705	3.90	.260	-.478
High school curric.	6	.690	3.43	-.187	.335
			Eigenvalue:	.249	.091
			Canonical correlation:	.446	.288
			Chi-square:	99.50	39.99
				P <.001	P <.005

Group Centroid Scores

	Achievers	Delayers	Dropouts	Converts	Transients	Late-comers
Function 1	1.154	.148	-.382	.280	-.113	-.197
Function 2	.173	.008	.297	-.167	-.093	-.477

FOOTNOTES

[1]Senior year occupational ambition (1972) and expected occupation at age 30 (1976) were obtained from fixed choice questions in which "Farmer, Farm Manager" was one of 14 responses in 1972 and 18 responses in 1976. Occupational attainment four years after high school (1976) was obtained from an open-ended question. Responses to this open-ended question were coded according to the Occupational Classification System used in the U.S. Census. For the purposes of this paper, five occupations were collapsed into "working in a farm job." These occupations and their census codes are: Farmers (801); Farm manager (802); Farm foreman (821); Farm laborer, wage worker (823); and Farm laborer, unpaid family worker (823). Although the response set of this latter question is not strictly comparable to the response sets of the previous two questions, it was felt that limiting occupational attainment responses strictly to Farmer/Farm Manager (801, 802) would fail to capture those farm-oriented individuals working their way up the agricultural ladder. Given what we know about farm recruitment already, it seems reasonable to assume that many young people begin as workers on the family farm before they assume an ownership/managerial role.

[2]Race and sex were obtained from fixed choice questions on the base year (1972) questionnaire. Race was coded 1 for white and 0 for nonwhite, while sex was coded 1 for male and 0 for female. Residence place was obtained from a base year question that asked: "Which best describes the location of the place in which you live?" Eight fixed responses ranging from 1) in a rural or farming community to 8) in a suburb of a very large city were provided. For this analysis, the eight categories were collapsed into 1 for "in a rural

or farming community" and 0 for all other residence places. Father's occupation was obtained from a fixed choice question where the respondent was asked to indicate the work done by his/her father. Farmer/Farm Manager was one of the choices. This variable was coded 1 for the responses Farmer/Farm Manager and 0 for all other occupations. High school curriculum was obtained from the Student's School Record Information form and coded 1 if the respondent's high school course of study was in vocational agriculture and 0 if the course of study was in any other area (e.g., college prep, general, vocational-health, etc.). Number of semesters of agriculture taken in high school is a simple metric taken from the School Record Information Form. Values range from 0 to 18. Finally, educational attainment was obtained from the following fixed choice question on the third follow-up: "As of the first week of October 1976, what was your highest level of education or training?" Eight choices ranging from 1) finished high school to 8) college program: Ph.D. or advanced professional degree were collapsed into the following trichotomy: 1) finished high school; 2) less than two years of post high school training; 3) two or more years of post high school training.

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